

28 Die in Pioneer Hotel, Tucson, Arizona

LAURENCE D. WATROUS

Supervisor, NFPA Fire Record Department

IN the January 1971 issue of *FIRE JOURNAL* an article discussed a hotel fire in Los Angeles in which 19 occupants died and another hotel fire in Seattle in which 20 occupants died.¹ The structures involved were both old, built about 1910. Both were constructed with masonry walls and with wood floors, roof, and frame. Both of them had open stairways. In both the fires were of incendiary cause.

On December 20, 1970, in Tucson, Arizona, another major fire occurred in another hotel, killing 28 of the occupants. This hotel was a luxurious high-rise downtown hotel. However, it too had open stairways, and it too experienced a fire apparently of incendiary cause. The question now arises: How many more hotels will have to experience a disastrous fire — and how many more people must be killed — before fire protection people, people who know how to prevent such losses, such as you, take corrective action? Let us examine this latest fire, with corrective action in mind.

THE PIONEER INTERNATIONAL HOTEL is located on the northeast corner of North Stone Avenue and Pennington Street in the heart of the Tucson business district. The 11-story main structure facing North Stone Avenue and a two-story east wing facing Pennington Street were erected in 1929. A two-story section east of the main structure and north of the east wing was constructed about the same time, giving the total building a nearly square ground-floor configuration (see Figure 1). At some later date four more stories were added to the two-story east wing. At the time of the fire the building had three distinct levels — two stories, six stories, and 11 stories.

The original building was constructed with 12-inch poured concrete exterior walls. The exterior walls extended above the roof one story, enclosing what at one

time was a roof garden and giving the building an appearance of being 12 stories high. For aesthetic reasons the exterior walls were covered with $\frac{1}{4}$ -inch cement plaster. All interior walls were of three-inch hollow-tile construction, covered on each side with $\frac{1}{2}$ -inch gypsum plaster. All columns, beams, girders, and floor joists were of reinforced concrete. The roofs were metal deck or poured concrete with a composition covering. The floors throughout were poured concrete.

There were two small manually operated passenger elevators that opened to the corridor in the main section. They ran from the basement through the eleventh story. Near the north end of the building there was also a seldom used service elevator that served all floors. A freight elevator operated only to the second-story kitchen from the basement.

There were two open stairways, one in the main section and one in the east wing. The stairway in the main section was open from the third floor through the eleventh floor. The other stairway had self-closing fire

The main section, looking from the north. North Stone Avenue is in the foreground.



The author is indebted to the Tucson Fire Department for assistance during his review of the fire. All the photos are by the Fire Department unless otherwise credited.

¹ Laurence D. Watrous, "Two Fatal Hotel Fires," *FIRE JOURNAL*, Vol. 65, No. 1 (January 1971), p. 33.



Figure 1. Fireground diagram of hotel area. A is location of dry standpipe siamese. B is location of wet standpipe siamese.



White rag still attached to doorway to indicate that the room had been searched. Such a procedure is an excellent idea during large search and rescue operations.

L. D. WATROUS

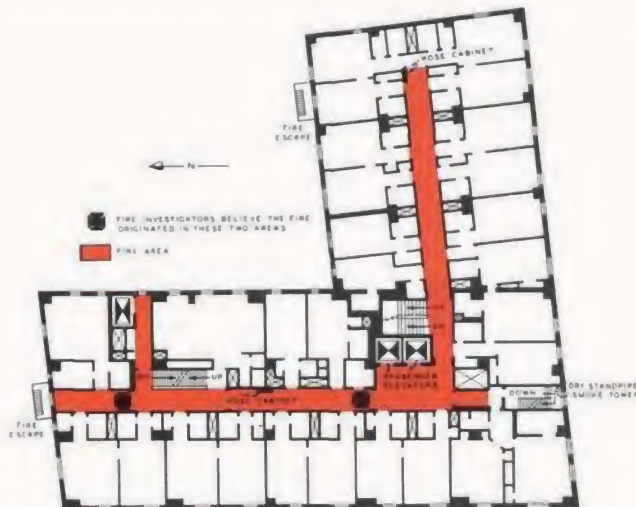


Figure 2. Floor plan of the fourth floor, which is typical of the third through sixth stories. The shading indicates the area on the fourth floor destroyed by fire.

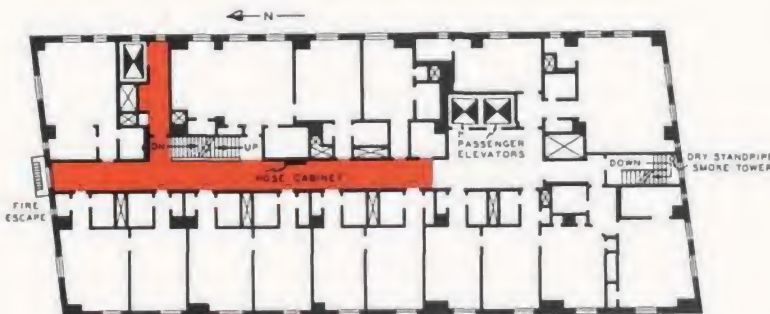


Figure 3. Floor plan of the tenth floor, which is typical of the seventh through eleventh stories. The shading indicates the area on the tenth floor destroyed by fire.



The side of a solid-core door that was exposed to the fire. Stairs are located just to the right behind the photographer.



The outlines of two young boys who died of carbon monoxide poisoning. Tucson Daily Citizen

doors at the second-floor level but was open from there through the sixth floor.

On the south end of the main structure there was an exterior stairway, partially enclosed by the exterior of the building. It extended from the second floor to the roof and was open to the outside at each floor level. Entrance was gained to this exterior stairway from the main corridor through a fire door. There were also two exterior fire escapes, one at the north end of the main building that extended from the second story to the roof of the 11-story building and one on the rear of the six-story wing that extended from the second story to the roof of the sixth story. The fire escape on the main section was accessible from the main corridor; the escape on the six-story wing was accessible only through one guest room on each floor.

Air conditioning was accomplished by units above the ceiling in the entranceway to each room. Room air circulated by these units was cooled or heated by a cold- or hot-water system. No air was mechanically moved from room to room or from the corridor to the room.

The corridors and stairs were covered with a tufted 100 per cent acrylic carpet that extended 22 inches up the walls from the floor. Under the carpet in the corridor were two layers of padding. One layer was primarily heavy jute and the other was a fibrous material

with paper covering. An 8-inch-by- $\frac{3}{4}$ -inch piece of plywood covered with a plastic laminate was attached to the wall directly above the carpet. The remaining 4 feet 8 inches of the wall was covered with a vinyl-coated wallpaper, separated about every five feet by vertical one-by-two-inch pieces of wood. There was a suspended ceiling of glass-fiber panels placed in metal channels that hung about eight inches below a wire-lath-and-plaster ceiling. The wire lath and plaster enclosed the area between the floor joists and the floor above. Electric conduit and equipment was installed between the plaster and glass-fiber ceilings.

The guest rooms contained normal hotel furniture — beds, chairs, dressers, and a TV. The walls and ceilings were painted; the floors were carpeted, except in the bathrooms. The doors from the corridors to the guest rooms were of light wood-panel construction.

The building was not equipped with automatic protection of any kind or with a manual evacuation alarm. There were a dry-pipe standpipe in the exterior stairway and a wet standpipe in about the center of the main structure. There were two hose cabinets on each floor through the sixth and there was one on each floor from the seventh through the eleventh supplied by the wet standpipe. Both standpipes could be supplied by the Fire Department from the outside at street level.

The ground-floor area was occupied by the hotel



Top: The stairway from the fifth to the sixth floor. Note how the heat bent the railing and spalled the plaster covering the tile wall.



Above: The third-floor elevator lobby. Note the carpeting, the eight-inch strip of laminated plywood, and the plastic wall covering. All the elevator lobbies were alike.

lobby, a dining room, and various commercial establishments. The second floor had several offices and meeting rooms and a large ballroom. All the upper floors were arranged as indicated in Figures 2 and 3, primarily for temporary guests. However, there were nine permanent guests at the time of the fire. The hotel had 175 rooms and suites available for rent, and at the time of the fire 113 guests were registered. There were also about 350 people attending a Christmas party in the second-story ballroom.

ABOUT 20 MINUTES AFTER MIDNIGHT the Fire Department received its first call. The caller said he had heard there was a car fire in front of the Pioneer Hotel. A second call, received less than a minute later, stated there was a fire on the seventh floor of the hotel. The next call was received from the hotel stating the fire was on the third floor. At 12:22 a fourth caller mentioned the fire and then that he could see fire apparatus responding.

As the apparatus arrived the officer reported smoke showing from the upper floors. People were leaning from windows screaming for help. Before fire fighters could place an aerial ladder one woman jumped to her death.

When the fire fighters entered the building they found heavy smoke in the corridors from the fourth to the top floor. Some fire could be seen coming from windows in the upper stories. A combined attack of rescue and fire-fighting was immediately initiated. Aerial ladders and ground ladders were placed and replaced, to rescue those who appeared at windows. Hand lines were taken into the building and attached to the dry standpipe at various floor levels. Hose on the wet standpipe was also used as the fire fighters progressed upward floor by floor, extinguishing the blaze. When rescue operations had been completed by the aerial at the front of the building, a ladder pipe was set up and directed into the eighth- and ninth-story windows.

When the Chief of the Department arrived he set up a "yellow alert," which automatically calls for assistance from predetermined outside agencies and various city departments. Off-duty men were called back, and 122 reported to bolster strength, relieve injured fire fighters, and man reserve equipment. A Fire Department Operations Center was established at a nearby fire station to control the over-all operations and provide protection for the rest of the city. Five mutual-aid companies were called in and with four Tucson reserve engines provided protection in the vacated stations.

About an hour after the initial alarm the fire was considered under control, and a search for victims was begun. Carbon monoxide had killed two occupants in the sixth story, two in the seventh, one in the ninth, six in the tenth, and six in the eleventh. Burns killed two

occupants on the eighth floor and five on the ninth floor. Three people on the eighth floor and one on the ninth floor died as the result of falls. To prevent confusion over which rooms had been searched, white rags were attached to the doorway of each room after it had been checked. Small hot spots were cooled down during and after the search. All men and apparatus had been returned to service by 8:00 am except one company, which remained as a fire watch until 3:00 pm.

When all the information had been gathered the reports told a grim story about a fire-resistive building. Twenty-eight occupants had died; 38 occupants and 33 fire fighters had received injuries that required medical attention; and a loss estimated at \$1,500,000 had occurred. The fire had severely damaged the corridors and stairways from the fourth through the eleventh story, and six rooms had been burned out. Heat and smoke had caused varying amounts of damage in the other rooms.

INVESTIGATIONS BY THE FIRE DEPARTMENT FIRE PREVENTION DIVISION found that two fires had started at two locations on the fourth floor of the main section, separated by about 60 feet. Officials believe the fires originated at floor level against the wall, where the floor carpet met the wall carpet. They feel the fires were set sometime before midnight and that they spread rapidly, joining and then spreading up the two open stairways. Lack of sufficient air allowed incomplete combustion to generate large quantities of fire gases and thick smoke. During the early stages, before the fire had taken control of the upper corridors, very few people were able to make their way to safety by way of the stairs and elevators. The fire quickly cut off the means of egress — the corridors. Very few people became aware of the fire in time, as there was no alarm system. Only those who smelled smoke or heard cries of fire in time were able to escape unaided. Several occupants made bed-sheet ropes to escape from their rooms. Several others shinned down electrical conduit attached to the rear of the building and adjacent to their windows as smoke entered around the doors and filled their rooms. Others threw mattresses to roofs below and jumped, some receiving injuries. Most of the occupants were rescued over Fire Department ladders.

The light panel doors held up fairly well and did not allow a significant amount of fire into the rooms, even though there was severe burning in the corridors. The rooms in which the doors had been opened and left open were completely burned out by superheated fire gases that burned viciously when mixed with the fresh air in the rooms.

(Continued on page 27)



Top: The fifth-floor elevator lobby after the fire. The interiors of the doors were discolored but no fire passed into the shaft.

Above: This room is on the eighth floor. The door to the corridor was left open during the fire.

other one is a swinging fire door. The sliding fire door must be kept open when the building is occupied.

New text on outside ramps (5-62) has been added to Section 5-6. Previous editions did not cover outside ramps.

A new Paragraph (5-7141) has been added to Section 5-7, "Exit Passageways." The new text requires that the floor be solid and without perforations.

The credit for units of exit width for escalators in 5-8124 has been expanded. Old 5-8124, which required escalators to meet the requirements for stairs as to tread and riser dimensions, has been deleted. The new text allows one unit of exit width for a 32-inch escalator,

two units for a 48-inch escalator.

In 5-10221, on the subject of Type 1 emergency lighting, the requirements that such lighting be provided on failure of normal lighting due to any fault "in the main lighting system" has been changed to any fault *in the circuits serving areas requiring temporary lighting*.

In Section 5-11, "Exit Marking," permission to use internally illuminated exit signs with letters 4½ inches high has been deleted, so that all exit signs must have letters at least six inches high.

RICHARD E. STEVENS

NFPA Director of Engineering Services

The Third in a Series of Many? (continued from page 25)

Although a solid-core door on the eleventh floor at the top of the stairs withstood the force of the fire, it had not been installed properly. The door was too small for the opening in the tile wall and wood had been installed around it to make it fit. This wood around the door burned off and allowed the fire into a void space in the wall above the door. Heat and smoke filled the rooms behind this door, killing the occupants. The two permanent residents who occupied the area had been living in the building since it opened. It is ironic that they died, because there was a fire escape within several feet of where their bodies were found. Several years ago the window to the fire escape had been covered over with a canvas sheet painted the same color as the wall. A light drape had been hung to cover this part of the wall.

IT IS VERY DIFFICULT to protect a building from arson fires. However, once the fire is started there should be ways of slowing its progress. Closed fire doors on enclosed stairways would have greatly limited the vertical spread of heat and fire gases. While the fire originated on the fourth floor and spread through all the corridors to the roof, only rooms on the sixth, eighth, and ninth floors were severely damaged by fire. The occupants who died were located on the sixth through the elev-

enth floor. Enclosed stairways and closed fire doors would probably have held the fire to one floor.

The walls, ceiling, and floors of the corridors were of masonry or plaster construction and, therefore, did not contribute to the fire load. The carpet and the wall covering did, however, and to a degree sufficient to cause the fatalities and the severe damage.

Early-warning detection equipment connected directly to the Fire Department would have brought aid sooner, and there would have been a smaller fire to fight. Automatic sprinklers would have extinguished the two fires before they met in the fourth-story corridor, limiting the loss to fire and water damage.

UNFORTUNATELY, THERE ARE PEOPLE WHO MALICIOUSLY START FIRES. All those involved in fire protection must work to limit the results of the actions of the arsonist. Corrective steps must be taken by you, the reader, and others like you. Someday *you* might be in a hotel similar to the Pioneer International Hotel. Would you feel comfortable knowing the stairs were open and that a very small amount of combustibles in the corridor could do such damage? What about the next hotel fire? How would you feel if it were in your area, and you had been aware of the problems that existed yet took no corrective action? Remember, fire does not always happen to the other person! △